iWave
Embedding Intelligence

DATASHEET

Industrial IoT Gateway

iW-Rainbow-G44

The Industrial IoT Gateway powered by a powerful ARM Cortex A9 core is built for Industry 4.0 and digital transformation solutions across industries. With a wide range of industrial interfaces such as Analog Input Module, MODBUS RTU/TCP over RS485 and a plethora of wireless connectivity options such as 4G LTE, Cat – NB1, Wi-Fi and BLE, the gateway acts as a hub bridging legacy industrial machines to the cloud enabling data rich analytics.
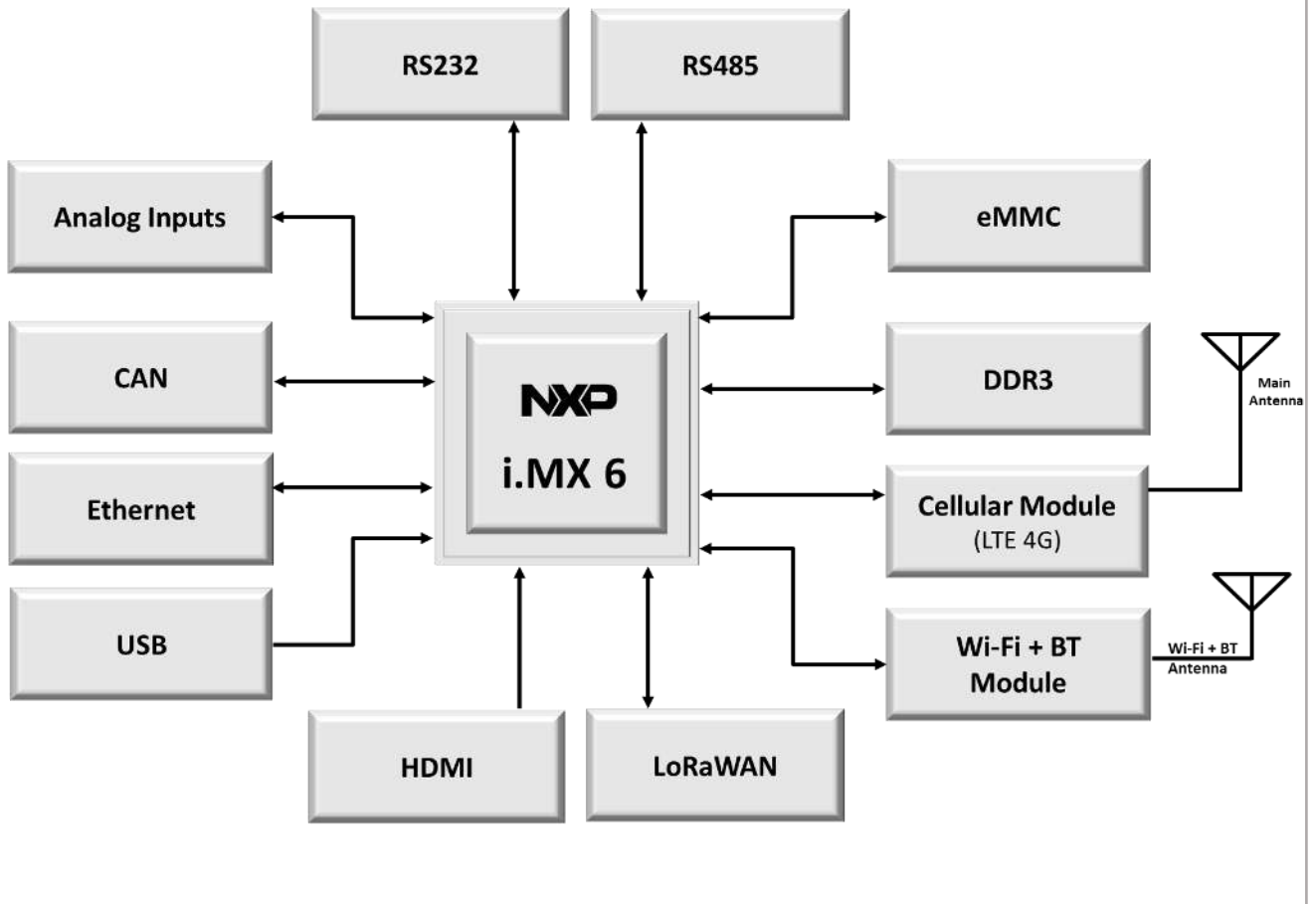
Key Features

- NXP i.MX 6 CPU
- Wireless Connectivity: 4G/Wi-Fi/BLE
- Interfaces:
  - RS232
  - RS485
  - Analog Inputs
  - CAN
- Protocols:
  - MODBUS RTU/TCP, DLMS, HART

Modular, Scalable & Configurable

Enabled with a wide suite of wireless blocks and peripheral modules, The gateway can be customised to suit your use-case and serve best economical fit. The gateway processing core and memory configurations can be increased based on computing power required.

This plug and play architecture greatly reduces the prototype development life cycle and provides developers and integrators with a multitude of options with regard to the feature set of the Gateway.

Benefits and Value Proposition

Powered by a powerful ARM Cortex A9 dual core processor coupled with the wide options of industrial input interfaces, the gateway can optimise data flow, take real time decisions leading to increased efficiency and performance of legacy assets.

Enabled with MQTT and HTTP stacks over an UBUNTU OS integrated with Node-Red application, the gateway is developer friendly and provides the open environment required to build applications.

Functional Block Diagram

Note:

- *In production, The IoT gateway can be configured as per the required features*
- *For more details on the IoT gateway configurations, please contact iWave sales team at mktg@iwavesystems.com*

Industrial IoT Gateway

Processor Core and Storage

CPU	NXP i.MX6 Dual Lite with ARM Cortex A9 Core
RAM	DDR3 – 1GB
FLASH	8GB eMMC Flash 32GB SD Card Storage

Wireless Connectivity

Cellular Connectivity	4G LTE Cat-4 EMEA/APAC - B1/B3/B7/B8/B20/B28 North America/Canada - LTE FDD - B2/ B4/ B5/ B12/B13/ B25/ B26
	4G LTE Cat-M1/Cat-NB1 LTE FDD - B1/ B2/ B3/ B4/ B5/ B8/ B12/ B13/ B18/ B19/ B20/B28 LTE TDD - B39 (for Cat-M1 only)
Wi-Fi[1]	802.11 b/g/n/ac/ax Hotspot and client mode
BLE[1]	Bluetooth v5.0
LoRaWAN	8 Channel LoRaWAN Concentrator (865/915 MHz) LoRaWAN Class A and Class C Integrated packet forwarder and network server

Interfaces and Peripherals

RS232[1]	1 Port
RS485	2 Ports
Analog Input[1]	8 channels (Default) 4 channels : 0 - 9V Input Range 4 channels : 4 - 20mA
Ethernet	1 GbE Port RJ45 Connector
CAN	2 Ports
USB	USB Host x 1 Port Debug Serial Micro USB, Supports device configuration x 1 Port
HDMI[1]	Display port version 1.4

Positioning

GNSS	GPS, GLONASS, BeiDou, Galileo, QZSS

Protocols

Industrial Protocols[1]	MODBUS RTU, MODBUS TCP, DLMS, HART

[1] *Optional features: For more information please contact iWave sales team at mktg@iwavesystems.com*

Industrial IoT Gateway

SIM Provision

SIM connector	Micro SIM Connector eSIM[1]

Power Characteristics

Power Input	24V DC, 3A 7.4V Lithium-ion, 1000mAh rechargeable battery back up

Environmental Conditions

Operating Temperature	-20°C to +70°C [2]

Security

Security[1]	SSL / TLS Layer 128 bit AES (LoRa) Secure Boot Firewall (IP Tables) & IP routing

Software Specifications

Board support package (BSP)	UBUNTU 20.04
Cloud Platforms Integrated[1]	Microsoft Azure, IBM Watson, AWS, Oracle, Cumulocity IoT, Thingworx
External Watchdog	• Auto-reboot Logic • Safe shut down
Software Protocols[1]	• MQTT • HTTP/HTTPS • TCP/IP, UDP, FDP • LWM2M • CoAP • LoRaWAN 1.0

Mechanical

Dimensions (H x W x D)	220*120*47 mm
Enclosure Material	Aluminium Enclosure
Manufacturing Process	Aluminium sheet metal cutting and milling
Assembly Type	Screw fitting
Colour of Enclosure	Milky Gray (RAL 9002)
Enclosure Surface Finish	Mat finish
Protecting Class	IP30
Mounting Options	Direct wall mount and din rail clamp

[1] *Optional features: For more information please contact iWave sales team at mktg@iwavesystems.com*

[2] *Temperature range subject to use case and operational functionality*
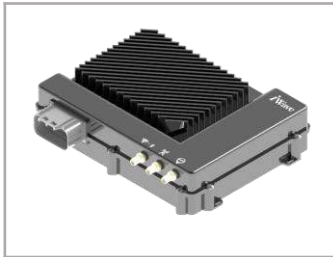
Related Products

LoRaWAN Gateway

Industrial grade LoRaWAN Gateway enables seamless interconnection of infrastructure devices with secure data flow from end (devices) to end (cloud). It ensures data generated by devices and systems can reach with security and safety from device to the cloud and return—without replacement of existing infrastructure.

Rugged Telematics Device

Rugged Telematics Device is integrated with multiple interfaces such as CAN Interfaces, RS232, RS485, K-Line and Digital Inputs. With the support for multiple protocols and powerful edge firmware, the rugged telematics device is suitable for wide range of applications.

Telematics Gateway

The i.MX 8XLite powered Telematics Gateway is built with extensive interfaces: 4 CAN Interfaces, RS232, RS485, Analog Inputs and Digital Inputs. With the support for multiple protocols and powerful edge firmware, the gateway is suitable for wide range of applications.

Document Revision History

Document Number		
Release	Date	Description
1.0	25th Sep, 2021	Official Release Version
1.1	04th April, 2022	Specification update

CONTACT US

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NOTE: "Please refer the actual configuration that has been ordered. Few sections of this manual may not apply, depending on the ordered configuration"

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